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Lesson 3 **Tag Attributes &** **Character References**

Lesson Topics

- ▶ Tag Attributes
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Tag Attributes

Tag attributes are elements (technically called *parameters*) that modify the effect of a tag. Technically, tag attributes provide additional instructions to a Web browser that modify or alter the browser's interpretation of the tag. Thus, tag attributes allow HTML authors to script more complex, sophisticated Web pages.

New versions of the HTML Specification from the W3C and new browser versions from Netscape and Microsoft typically include new attributes for existing tags. These new attributes often provide more power and flexibility than new tags. Thus, a tag that you do not find functional or useful with its current attributes may become appealing to you if new attributes are released in the future.

Attribute Syntax

Attributes are placed *within* tags, as shown in Figure 3-1. An attribute always follows a tag element in the *opening* tag of a non-empty tag set. Attributes must be separated from the tag element by a single space. *Do not* use multiple spaces to separate a tag from its associated attribute(s).

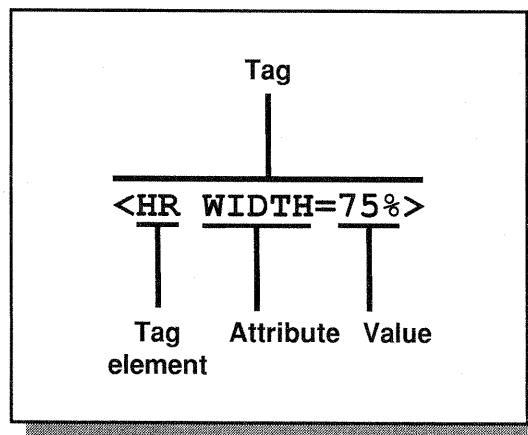


Figure 3-1: Tag attribute syntax



Not all HTML tags have attributes and some tags have multiple attributes. All attributes are tag-specific and *cannot arbitrarily be applied to other tags*.

Attribute Values

Attribute values cover a wide spectrum of functions and can be specified as:

- relative values (percentages or directions);
- absolute values (screen pixels or other units of measurement);
- author-supplied information (for example, data regarding an inline image or overall HTML document).

Values as Percentages or Numbers

Attribute values, when denoted as a percentage or value, have a specific range. This range, called the *attribute value range*, is tag-specific and depends entirely on the logical function of the attribute. The `WIDTH` attribute for the horizontal rule tag, `<HR>`, for instance, specifies the width of a horizontal rule in a user's browser. Because the rule can be no wider than the entire width of the browser, 100% is the top of the attribute value range and 0% is the bottom of the value range.

Required Attributes

Some tags, such as the Anchor tag, `<A>`, Image tag, ``, and Font tag, ``, require at least one attribute to function properly (establish validity) and to be correctly interpreted by a Web browser.

There are two categories of required attributes:

- specific, individual attributes;
- those attributes that are members of a specific tag's attribute family.

The syntax and value set specifications of required attributes are identical to that of non-required attributes.



Many HTML novices mistakenly perceive required attributes as part of the tag element. This misperception often leads to the creation of closing tags containing the attribute as well as the tag. In many browsers, this mistake will negate the validity of the closing tag or the entire tag set.

Attribute Rules

The syntactical and related rules applying to tag attributes must be followed to establish and maintain HTML document validity.

Keep the following in mind when applying attributes to an HTML tag:

- some tags have no attributes;
- both empty and non-empty tags offer attributes;
- multiple attributes can be used with a single tag;
- multiple attributes of a single tag may be presented in *any order*;
- multiple attributes must be separated by a single space;
- some tags have *required* attributes;
- the same attribute may be applied to different tags; because the tags differ, so too may the value range of the attribute.



If a single attribute has a value consisting of more than one word (separated by spaces), enclose the attribute value in quotation marks (``).

Without the quotation marks, the browser will recognize only the *first* word of the value.

Horizontal Rule Tag <HR> Attributes

The Horizontal Rule tag, <HR>, places a horizontal line called a *rule* in a Web page to provide structure and organization to the page. Beyond the structural (layout) and white space benefits, the <HR> tag is used largely for cosmetic purposes.

- <HR> is an empty tag;
- <HR> has four tag attributes associated with it; two of which have multiple value ranges;
- <HR> has no required attributes.

Multiple tag attributes may be used with the <HR> tag simultaneously. As with all tags, the order of the attributes is irrelevant (they must simply be separated by a space).

Table 3-1 displays the <HR> attributes and their associated values.

<HR> Attribute	Description	Value(s)
WIDTH	Length of rule	<ul style="list-style-type: none"> ■ 0-100% (percentage of page width) when % symbol directly follows value ■ Width of rule as measured in <i>pixels</i> (no logical value limits) when no % symbol follows value
SIZE	Height (thickness) of rule	Height of rule as measured in <i>pixels</i> (no logical value limits)
ALIGN	Alignment of rule relative to page margins	Left, center, right
NOSHADE	Solid color fill of rule (rather than traditional shadowed "groove")	None

Table 3-1: Attributes associated with the <HR> tag



You can add vertical white space to an HTML document by specifying a horizontal rule with a specific **SIZE** but a **WIDTH** of zero. For example, `<HR WIDTH=0 SIZE=15>` would provide vertical white space of 15 pixels.

Note: this trick will produce a small tick mark in place of the rule if you are using a dark background color or pattern.

Exercise 3-1: Inserting Horizontal Rules and Modifying Rule Formatting

1. Switch applications to your text editor. Open WEBPAGE.HTM, if necessary.
2. Add the bold script (as shown below) to the text on your screen:

```
<B>Default horizontal rule</B>
<HR><P>
```

```
<B>WIDTH=50%</B>
<HR WIDTH=50%><P>
```

```
<B>WIDTH=50%, ALIGN=left</B>
<HR WIDTH=50% ALIGN=left><P>
```

```
<B>WIDTH=75%, ALIGN=right, SIZE=10</B>
<HR WIDTH=75% ALIGN=right SIZE=10><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 3-2. If they are not nearly identical, repeat the steps in this exercise.

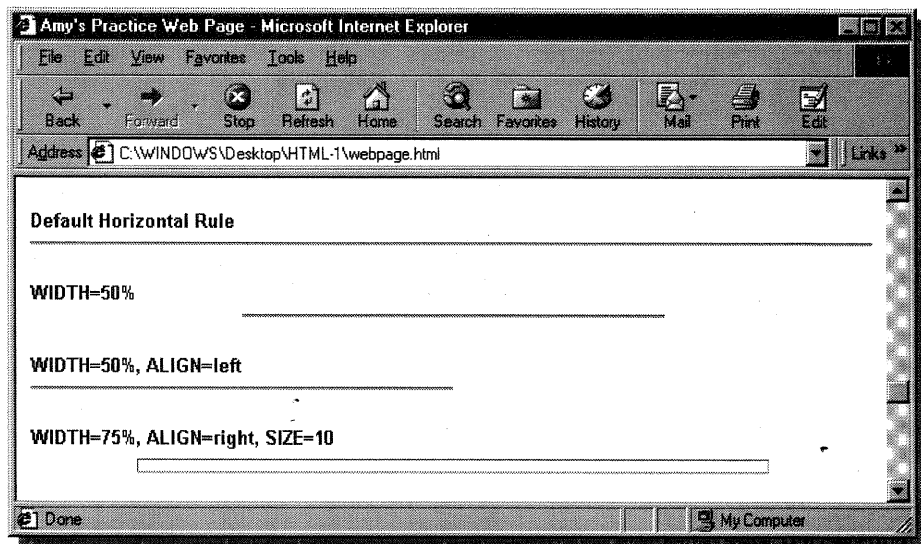


Figure 3-2: Horizontal rules inserted with the <HR> tag and various attributes

Font Tag Attributes

The Font tag, , introduced with HTML 3.2, allows you to change the size or color of Web page fonts. is a non-empty tag; all text (from a single character to thousands of words) between the opening and closing tags is affected.

- has three associated tag attributes, each of which has multiple value ranges
- requires at least one attribute

The value range of the SIZE attribute is 1-7. These values can be specified as either *absolute* or *relative* values. To specify an absolute value, you must choose a number between 1 and 7 (, for example). The relative value range is between -7 and +7, excluding 0 ().

The attributes are outlined in Table 3-2.

 Attribute	Description	Values
SIZE	Text size	<ul style="list-style-type: none"> ■ 1-7 (absolute values; no direct mapping to point or pixel sizes) ■ +1-7 / -1-7 (relative values; no direct mapping to point or pixel sizes)
COLOR	Text color	<ul style="list-style-type: none"> ■ One of 16 color names (black, green, silver, gray, white, maroon, red, purple, fuchsia, lime, olive, yellow, navy, blue, teal, aqua) ■ RGB hexadecimal notation codes (see <i>Appendix D: RGB Color Codes</i>)
FACE	Text font	<ul style="list-style-type: none"> ■ Any TrueType font name. This attribute defines a comma-separated list of font names in order of preference. ■

Table 3-2: Attributes associated with the tag

Exercise 3-2: Changing Font Size and Color

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the text on your screen:

```
<FONT SIZE=2>This is an absolute font size of 2</FONT>  
<FONT SIZE=6>This is an absolute font size of 6</FONT>  
<FONT SIZE=+3>This is a relative font size of +3</FONT>  
<FONT SIZE=+5>This is a relative font size of +5</FONT>  
<FONT SIZE=-5>This is a relative font size of -5</FONT><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 3-3. If they are not nearly identical, repeat the steps of this exercise, taking care to accurately type the script in Step 2.

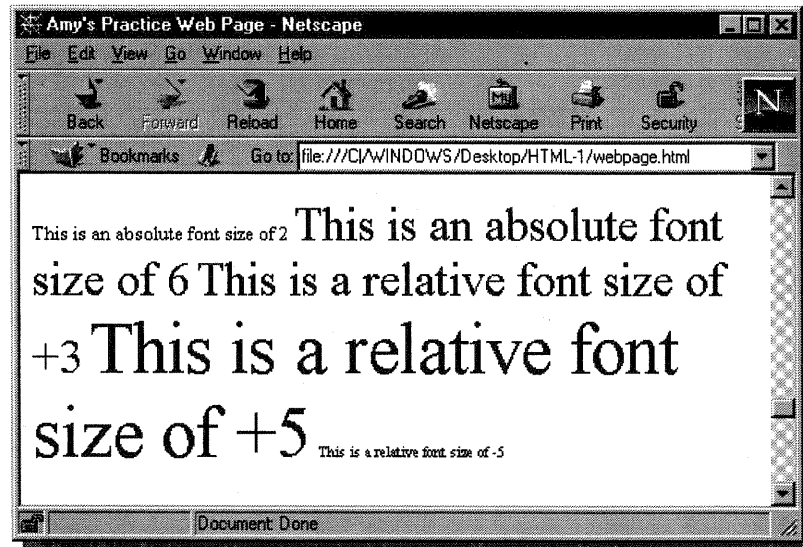


Figure 3-3: Text formatted with various absolute and relative font sizes

7. Modify the script you entered in Step 2 with the following bold script:

```
<FONT SIZE=2>This is an absolute font size of 2</FONT><BR>
<FONT SIZE=6>This is an absolute font size of 6</FONT><BR>
<FONT SIZE=+3>This is a relative font size of +3</FONT><BR>
<FONT SIZE=+5>This is a relative font size of +5</FONT><BR>
<FONT SIZE=-5>This is a relative font size of -5</FONT><P>

<FONT SIZE=+3 COLOR=green><B>This text is green</B></FONT><BR>
<FONT SIZE=+2 COLOR=red FACE=arial><B>This text is red and Arial
font</B></FONT><P>
```

8. Save the HTML document.
9. Switch applications to your Web browser.
10. Reload the Web page.
11. Compare the screen that is displayed in your Web browser with Figure 3-4. If they are not nearly identical, repeat the steps of this exercise, taking care to accurately type the script in Step 7.

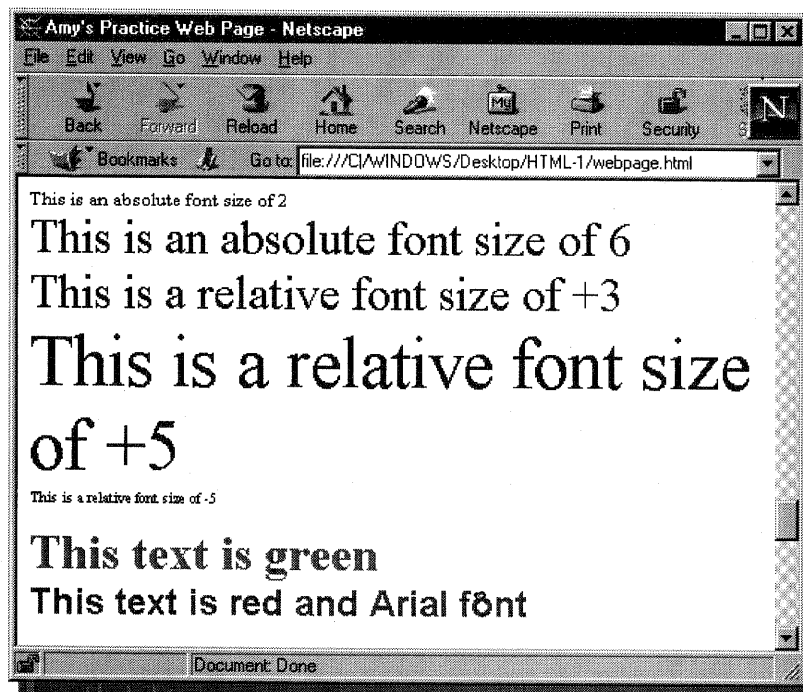


Figure 3-4: Text size and color modified with the tag

Heading Level Tags <H1>-<H6> Attribute

HTML 3.2 introduced a single attribute for the Heading Level tag family. The attribute, `ALIGN`, has three values:

- `ALIGN=left`
- `ALIGN=center`
- `ALIGN=right`

Left is the default alignment for Heading Levels; therefore, use of the `ALIGN=left` attribute value is unnecessary.



Many Web page design experts advocate using the `<H2>` heading tag, rather than the `<H1>` tag, as the “largest” tag. This creates a more subtle—yet still pronounced—effect for heading text. Because its font size is so large, the `<H1>` tag should be used sparingly.

Exercise 3-3: Changing Alignment of Heading Level Text

1. Switch applications to your text editor.
2. Add the bold script (as shown below) to the script you entered in the previous Heading Level exercise (see Exercise 2-3) to read as follows:

```
<H1>Heading Level 1</H1>
<H2 ALIGN=center>Heading Level 2</H2>
<H3>Heading Level 3</H3>
<H4>Heading Level 4</H4>
<H5 ALIGN=right>Heading Level 5</H5>
<H6>Heading Level 6</H6>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the previous Heading Level text with the current text. Note how the different `ALIGN` attribute values affected the justification of the heading text.

Character References

Character references, sometimes called *character entities*, are numeric or symbolic names for characters that can be incorporated into an HTML document. Character references may appear in two forms: 1) character *numeric* references and 2) character *entity* references.

Characters that can be represented by HTML character references include the following:

- copyright symbol (©)
- trademark registration symbol (®)
- degree symbol (°)
- accented character (tildes ~, umlauts ")

Character references have an exact syntax: reference elements are always preceded by an ampersand (&) and followed by a semicolon (;), as shown in Figure 3-5.

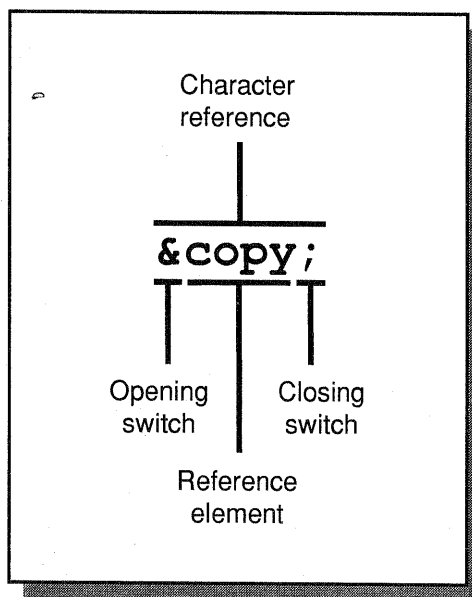


Figure 3-5: Character *entity* reference syntax



Character entity references are *case sensitive*; they must be all lowercase. If the character entity element is specified in uppercase or mixed case, the browser will misinterpret it.

Character Number References

Character number references are specified using the same syntax as standard character references. The only exception between the two methods is the use of ANSI character numbers in character number references instead of entity references.

Syntax

Using the standard character reference syntax, substitute a pound sign (#) followed by an ANSI character number for the entity element.

Thus, a non-breaking horizontal space can be specified in two ways with identical results:

- ` `
- ` `

Like character entity references, character numeric references have an exact syntax: reference elements are always preceded by an ampersand (&) and followed by a semicolon (;), as shown in Figure 3-6.

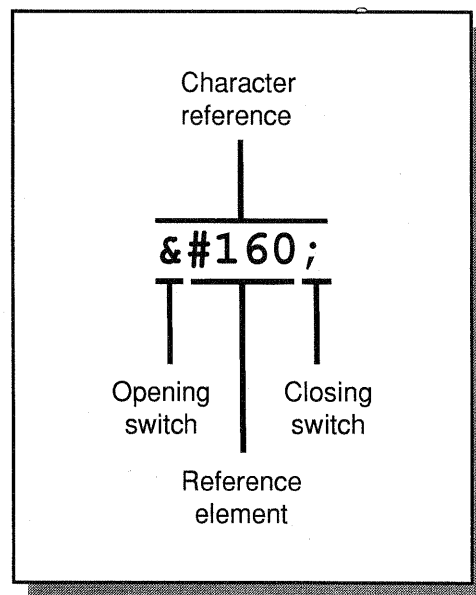


Figure 3-6: Character *numeric* reference syntax

The complete list of 216 ANSI characters that can be specified as HTML character entities is provided in Appendix C: *ANSI Character Set*.

Exercise 3-4: Using Character Entity References

1. Switch applications to your text editor.
2. Add the bold script shown below to the text in your HTML document:

Character Entity References

Copyright symbol ©

Registered symbol ®

Amperсанд &

Degree symbol °

Quotation mark " <P>

I can even insert additional ` ` ` ` ` ` ` ` horizontal spaces`<P>`

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 3-7. They should appear nearly identical. If this is not the case, check your HTML script against Step 2.

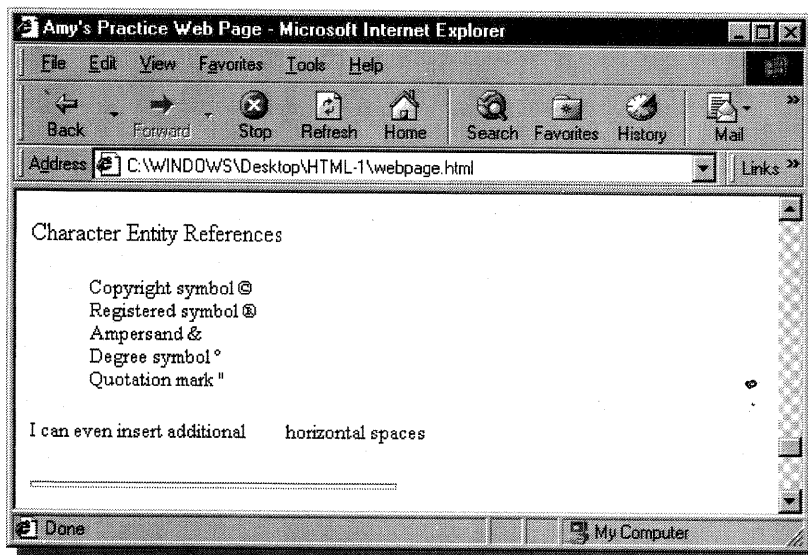


Figure 3-7: HTML character entity references

Exercise 3-5: Using Character Numeric References

1. Switch applications to your text editor.
2. Add the bold script shown below to the text in your HTML document:

```
<FONT SIZE=+1>Character Numeric References</FONT><P>
```

```
<UL>
```

```
Zero sum symbol &#216;<BR>
```

```
Legal section symbol &#167;<BR>
```

```
Percentage symbol &#137;<BR>
```

```
Japanese Yen symbol &#165;<BR>
```

```
Paragraph symbol &#182;<P>
```

```
</UL>
```

```
I can even insert additional &#160; &#160; &#160; &#160; horizontal  
spaces<P>
```

```
<HR SIZE=4 WIDTH=50% ALIGN=left><P>
```

3. Save the HTML document.
4. Switch applications to your Web browser.
5. Reload the Web page.
6. Compare the screen that is displayed in your Web browser with Figure 3-8. They should appear nearly identical. If this is not the case, check your HTML script against Step 2.

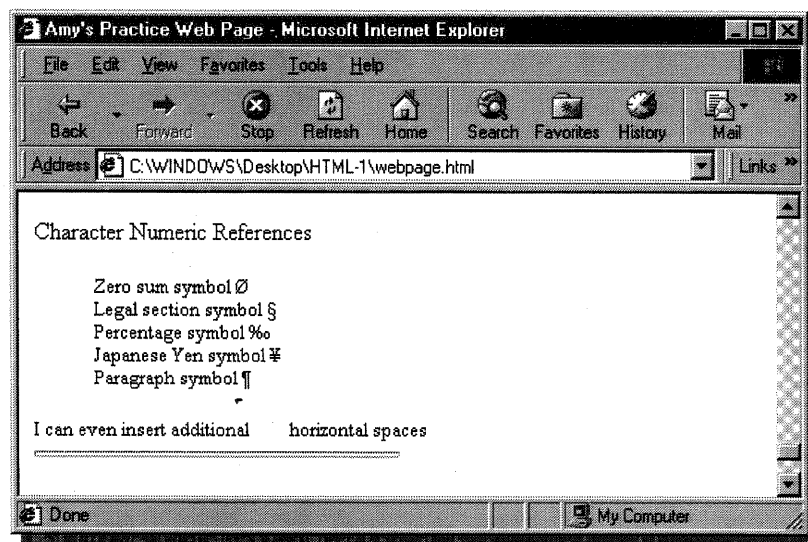


Figure 3-8: HTML character numeric references

Lesson 3 Summary

- ▶ The HTML scripting language is comprised of tags, tag attributes, and character entities.
- ▶ The manner in which a tag is interpreted by a Web browser can be manipulated using tag attributes. Attributes are specific to an individual tag. Not all tags have attributes, and many tags have multiple attributes. If available, multiple attributes can be used with a single tag.
- ▶ Attribute values cover a wide spectrum of functions and can be specified as relative values (percentages or directions), absolute values (screen pixels or other units of measurement), or author-supplied information (for example, data regarding an inline image or overall HTML document).
- ▶ The syntactical and related rules applying to tag attributes must be followed to establish and maintain HTML document validity. These rules include: 1) some tags have no attributes; 2) both empty and non-empty tags offer attributes; 3) multiple attributes can be used with a single tag; 4) multiple attributes of a single tag may be presented in any order; 5) multiple attributes must be separated by a single space; 6) some tags have required attributes, and 7) the same attribute may be applied to different tags; because the tags differ, so too may the value or range of the attribute.
- ▶ The `<HR>` tag has four attributes: width, size, align, and noshade.
- ▶ The `` tag has three associated attributes, each of which has multiple value ranges. `` requires at least one attribute.
- ▶ The family of Heading Level tags (`<H1>` through `<H6>`) has a single attribute: `ALIGN`. The values of `ALIGN` are left, center, and right.
- ▶ Character references, sometimes called character entities, enable HTML authors to add special characters to their Web pages, such as copyright symbols, degree signs, and foreign language characters. Character entities also ensure the proper interpretation of punctuation marks—such as quotation marks—by a Web browser.
- ▶ Character number references are specified using the same syntax as standard character references. The only exception between the two methods is the use of ANSI character numbers in character number references instead of entity references.
- ▶ 216 of the 256 symbols in the ANSI character set may be represented by a character entity using the standard character entity syntax. Substitute a pound sign (#) and the ANSI character number for the conventional character entity element. As with all character entities, a semi-colon must close the character entity.